

**Patent claims**

1. A pressure sensor having
  - a diaphragm seal (3, 45) with a separating  
5 diaphragm (7, 53),
  - on which a pressure (P) to be measured acts, and
  - a ceramic measuring cell (9, 57), connected  
exclusively by inorganic materials to the  
diaphragm seal (3, 45),
  - 10 - in which the separating diaphragm (7, 53) and all  
further sensor components coming into contact  
during measurement with a medium of which the  
pressure (P) is to be measured are metallic.
- 15 2. The pressure sensor as claimed in claim 1, in which  
the measuring cell (9) is fixed without restraint  
in a housing (1) by being seated in the axial  
direction on a small tube (11), via which the  
ceramic measuring cell (9) is connected to the  
20 diaphragm seal (3).
3. The pressure sensor as claimed in claim 1 or 2,
  - in which the measuring cell (9) has a measuring  
diaphragm (15),
  - 25 - which subdivides an internal space of the  
measuring cell (9) into a first chamber (17) and  
a second chamber (19),
  - in which the first chamber (17) is connected to  
the diaphragm seal (3) via a small tube (11),
  - 30 - in which the first chamber (17), the small tube  
(11) and the diaphragm seal (11) are filled with  
a fluid,
  - in which the fluid transfers a pressure (P)  
acting on the separating diaphragm (7) to the  
35 measuring diaphragm (15),
  - in which a reference pressure acts on the  
measuring diaphragm (15) in the second chamber  
(19), and

- which has an electromechanical transducer for registering a deflection of the measuring diaphragm dependent on the pressure (P) and the reference pressure and for converting said deflection into an electrical output signal.
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4. The pressure sensor as claimed in claim 3, in which
- the reference pressure ( $P_R$ ) is a reference pressure prevailing in the ambience and the second chamber (19) has an opening (21) through which the reference pressure is introduced into the second chamber (19), or
  - the second chamber (19) is hermetically sealed and the reference pressure ( $P_A$ ) is an absolute pressure prevailing in the second chamber (19).
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5. The pressure sensor as claimed in one of the preceding claims, in which the measuring cell (9) is additionally enclosed in the radial direction in a holder.
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6. The pressure sensor as claimed in claim 5, in which the holder has a body (35) made of an elastomer filling an intermediate space between the measuring cell (9) and the housing (1).
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7. The pressure sensor as claimed in claim 1, in which the ceramic measuring cell (57) is fastened by means of a metallic joint (71) in a housing (47) connected to the diaphragm seal (45).
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8. The pressure sensor as claimed in claim 7, in which the housing (47) consists of a material which has a coefficient of thermal expansion which is approximately equal to the coefficient of thermal expansion of the ceramic of the measuring cell.
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9. The pressure sensor as claimed in claim 1, in which  
the measuring cell (57) is fastened in an insert  
(83) which is arranged in a housing (81), is  
connected to the diaphragm seal (45) and reaches  
5 around the measuring cell (57) in a pot-like  
manner.
10. The pressure sensor as claimed in claim 1, in which  
the measuring cell is mounted without restraint and  
10 isostatically in a chamber which is connected to  
the diaphragm seal and filled with a fluid,  
surrounded on all sides by the fluid.